

REMARKS

Claims 1-20 are pending in the present application. Claims 1, 3-7, 11, 13-17, and 20 are rejected under 35 U.S.C. 102(b), claims 2, 8-10, 12, 18, and 19 are rejected under 35 U.S.C. 103(a), and claims 9 and 16 are objected to. Claims 1, 9, 13, 16, and 20 are amended, and claims 21 and 22 are added. No new matter is added. The rejections are respectfully traversed in light of the following remarks, and reconsideration is requested.

Objections

Claims 9 and 16 were objected to for failing to provide proper antecedent basis. As the Examiner correctly interprets, claims 9 and 16 should properly depend on claims 6 and 15, respectively. Claims 9 and 16 are amended accordingly.

Rejections under 35 U.S.C. § 102(b)

Claims 1, 3-7, 11, 13-17, and 20 were rejected under 35 U.S.C. 102(b) as being anticipated by Yamane et al. (U.S. 5,459,803). In rejecting claim 1, the Examiner states, in part, that "Yamane teaches a method for manufacturing an optical fiber member comprising: modifying at least one end of an optical fiber member; and applying energy to the modified end of the optical fiber to form a lens surface (abstract and column 4, lines 10-22)".

In particular, Yamane discloses an optical fiber 10 comprising "a core 11 made of a quartz-based glass and a clad 12 made of another quartz-based glass which surrounds the core." (Yamane, col. 5, lines 12-14; Fig. 4). As shown in Figs. 4-8 and 10-14, the optical fiber has an end surface that is "flat and perpendicular" to the axial direction of the fiber. (Yamane, col. 5, lines 19-29, col. 6, lines 4-9, col. 7, lines 54-59,

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col. 8, lines 23-27, 33-35, and 39-43, and col. 9, lines 19-30). In other words, the optical fiber of Yamane has a significant clad portion, all of which is flat at the end of the fiber. A key objective in Yamane is having an "optical fiber with a lens which is free of any tapered portion". (Yamane, col. 3, lines 26-28 and col. 6, lines 4-8). At the middle of the fiber, the core 11 projects out from the flat portion of the clad that is either a curved or rounded shape as shown in Figs. 4-7 and 10-14, a truncated cone shape as shown in Fig. 8, or a conical shape as shown in Fig. 14. Thus, Yamane discloses a quartz-based optical fiber having a central core portion that is shaped (round, truncated cone, or conical) and an outer clad portion that is flat.

In contrast, claim 1 has been amended to recite "modifying . . . to form an end continuously tapered to the outer circumference of the optical fiber member; and . . . wherein the lens surface continuously tapers outward to the outer circumference of the optical fiber member." Support for the amendment is found in Applicant's specification at Figs. 3, 4A, and 4C and corresponding text, and thus no new matter is added. In particular, since the fiber ends are placed into a liquid bath (as shown in Fig. 2) to modify the ends or move material from the fiber, the shape of the modified fiber end is continuous from the outer circumference to the inner core. The modified end can then be formed into a lens, such as by heating, so that the lens has a continuous surface to the outer circumference of the fiber. This makes the process of forming a lens much simpler than the process disclosed in Yamane. Thus, Applicant believes claim 1 is now patentable over Yamane.

Claims 3-7 and 11 depend on claim 1 and are thus patentable over Yamane for at least the same reasons as claim 1.

Independent claim 13 has been amended to recite "etching . . . to form a tip continuously tapered to an outer surface of the fiber; and . . . wherein the lens surface

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continuously tapers outward to the outer surface of the fiber." Thus, for reasons similar to claim 1, claim 13 is patentable over Yamane.

Claims 14-17 depend on claim 13 and are thus patentable over Yamane for at least the same reasons as claim 13.

Independent claim 20 has been amended to recite "modifying . . . to form an end continuously tapered to the outer circumference of the fiber; and . . . wherein the first lens surface continuously tapers outward to the outer circumference of the fiber." Thus, for reasons similar to claim 1, claim 20 is patentable over Yamane.

Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejections of the claims 1, 3-7, 11, 13-17, and 20 under 35 U.S.C. § 102(b).

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Rejections under 35 U.S.C. § 103(a)

Claims 2, 8-10, 12, 18, and 19 were rejected under 35 U.S.C. 103(a) as unpatentable over Yamane in view of Grasso, III et al. (U.S. 6,375,651) and/or Cesaroni et al. (U.S. 2003/0029040). Grasso and Cesaroni are cited for disclosing features recited in claims dependent on independent claims 1 and 13. However, neither Grasso nor Cesaroni remedy the deficiencies of Yamane with respect to claims 1 and 13 discussed above.

Therefore, since Applicant believes independent claims 1 and 13 are patentable over Yamane in view of Grasso and/or Cesaroni, claims 2, 8-10, 12, 18, and 19, which depend on claims 1 and 13, are also patentable over Yamane in view of Grasso and/or Cesaroni.

Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejections of the claims 2, 8-10, 12, 18, and 19 under 35 U.S.C. § 103(a).

New Claims

Claims 21 and 22 are added, support for which is found in Applicant's specification at page 5, paragraph [0031]. Thus, no new matter is added. Claims 21 and 22 depend on claims 1 and 13, respectively, and are thus patentable over the cited references for at least the same reasons as claims 1 and 13.

In addition, claims 21 and 22 recite that the etching liquid includes a top layer of oil. As set forth in Applicant's specification, this layer of oil on the surface creates a barrier on the acid surface to control the depth of the etching process. In other words, the oil acts as an etch stop to prevent the etching liquid to climb beyond the oil film.

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None of the cited references teach or suggest this limitation. Accordingly, claims 21 and 22 are patentable over the cited references for this additional reason.

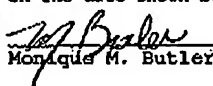
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CONCLUSION

For the foregoing reasons, Applicants believe pending claims 1-22 are allowable, and a notice of allowance is respectfully requested. If the Examiner has any questions regarding the application, the Examiner is invited to call the undersigned Attorney at (949) 752-7040.

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Date of Signature

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